Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Sub C1

1. (Currently Amended) A method for correcting a defective pixel in an image produced by a detector, the image including an array of pixels and the array of pixels having a corresponding array of pixel values, comprising:

(a) determining a local gradient, the local gradient comprising an array of local gradient matrix elements; and

(b) providing a correction value based on the local gradient to correct the defective pixel

wherein at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and each surrounding neighboring pixel of the defective pixel as additional matrix elements.

2. (Original) The method of claim 1, wherein step (a) of determining a local gradient includes determining the local gradient in part from a gradient kernel and at least a portion of the array of pixel values.

3. (Cancelled)

4. (Original) The method of claim 2, further comprising:

selecting a matrix size of the at least a portion of the array of pixel values; and

selecting the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

5. (Currently Amended) ~~The method of claim 1,~~ A method for correcting a defective pixel in an image produced by a detector, the image including an array of pixels and the array of pixels having a corresponding array of pixel values, comprising:

(a) determining a local gradient, the local gradient comprising a plurality of local gradient matrix elements; and

(b) providing a correction value based on the local gradient to correct the defective pixel

wherein step (b) of providing a correction value includes at least one of a linear interpolation and a weighted average of pixel values corresponding to the highest local gradient matrix elements.

6. (Original) The method of claim 5, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

7. (Original) The method of claim 5, wherein the weighted average of pixel values having the highest local gradient matrix elements include giving greater weight to pixel values proximate to the defective pixel.

8. (Currently Amended) ~~The method of claim 1, further comprising:~~ A method for correcting a defective pixel in an image produced by a detector, the image including an array of pixels and the array of pixels having a corresponding array of pixel values, comprising:

(a) determining a local gradient, the local gradient comprising a plurality of local gradient matrix elements;

(b) providing a correction value based on the local gradient to correct the defective pixel

identifying the defective pixel in the image produced by the detector before the determining step (a);

replacing temporarily the defective pixel with a linear interpolation of a surrounding neighboring pixels of the defective pixel before the determining step (a); and

replacing the defective pixel with the correction value after the providing step (b).

9. (Original) The method of claim 1, further comprising repeating steps (a)-(b) a plurality of times as desired to correct a plurality of defective pixels in the image produced by the detector.

10. (Currently Amended) A system for correcting a defective pixel in an image produced by a detector, comprising:

a processor coupled to the detector, the processor configured to determine a local gradient and to generate a correction value based on the local gradient, wherein the image includes an array of pixels, each pixel having a corresponding pixel value, and the local gradient comprising an array of local gradient matrix elements;

wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and each surrounding neighboring pixel of the defective pixel as additional matrix elements.

11. (Original) The system of claim 10, wherein the processor is configured to determine the local gradient partly from a gradient kernel and at least a portion of the array of pixel values.

12. (Cancelled)

13. (Original) The system of claim 11, further comprising an operator console coupled to the processor and configured to select a matrix size of the at least a portion of the array of pixel values and to select the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

14. (Original) The system of claim 10, wherein the correction value comprises at least one of a linear interpolation and a weighted average of pixel values having the highest local gradient matrix elements.

15. (Original) The system of claim 14, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

16. (Original) The system of claim 15, wherein the weighted average of pixel values having the highest local gradient matrix elements include providing greater weight to pixels proximate to the defective pixel.

17. (Original) The system of claim 10, wherein the detector comprises an array of photodetector elements, each photodetector element configured to convert an impinging photonic energy into an electrical signal proportional thereto.

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18. (Original) The system of claim 10, wherein the processor is configured to determine the local gradient and to generate the correction value for each of a plurality of defective pixels in the image produced by the detector.

19. (Original) A system for correcting a defective pixel in an image produced by a detector, the image including an array of pixels, the array of pixels having a corresponding array of pixel values, comprising:

(a) means for determining a local gradient, the local gradient comprising an array of local gradient matrix elements; and

(b) means for providing a correction value based on the local gradient to correct the defective pixel.

20. (Original) The system of claim 19, wherein the local gradient is determined in part from a gradient kernel and at least a portion of the array of pixel values.

21. (Original) The system of claim 20, wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and a surrounding neighboring pixels of the defective pixel as remaining matrix elements.

22. (Original) The system of claim 20, further comprising means for selecting a matrix size of the at least a portion of the array of pixel values and means for selecting the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

23. (Original) The system of claim 19, wherein the correction value comprises at least one of a linear interpolation and a weighted average of pixel values having the highest local gradient matrix elements.

24. (Original) The system of claim 23, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

25. (Original) The system of claim 23, wherein the weighted average of pixel values having the highest local gradient matrix elements include providing greater weight to pixels proximate to the defective pixel.

26. (Original) The system of claim 19, wherein the means for determining and the means for providing include determining the local gradient and generating the correction value, respectively, for each of a plurality of defective pixels in the image produced by the detector.

27. (Original) The system of claim 19, further comprising:

means for temporarily replacing the defective pixel with a linear interpolation of a surrounding neighboring pixels of the defective pixel before the local gradient is determined; and

means for replacing the defective pixel with the correction value.

28. (Original) The system of claim 27, wherein the means for replacing includes at least one of replacing the defective pixel with the correction value, and storing the correction value with an identifying link to the defective pixel in a storage device.

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29. (Currently Amended) A method for correcting a defective pixel in an image produced by a digital x-ray detector, the image including an array of pixels and the array of pixels having a corresponding array of pixel values, the method comprising:

acquiring an image from the digital x-ray detector;

determining a local gradient, the local gradient comprising an array of local gradient matrix elements; and

providing a correction value, which is based on the local gradient, to correct the defective pixel;

wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix element and each surrounding neighboring pixel of the defective pixel as additional matrix elements.

30. (Previously Presented) The method of claim 29, wherein determining a local gradient includes determining the local gradient in part from a gradient kernel and at least a portion of the array of pixel values.

31. (Previously Presented) The method of claim 30, wherein the at least a portion of the array of pixel values comprises a matrix, and includes the defective pixel as a center matrix

element and a surrounding neighboring pixels of the defective pixel as remaining matrix elements.

32. (Previously Presented) The method of claim 30, further comprising:

selecting a matrix size of the at least a portion of the array of pixel values; and

selecting the gradient kernel from a group including a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

33. (Previously Presented) The method of claim 29, wherein providing a correction value includes at least one of a linear interpolation and a weighted average of pixel values corresponding to the highest local gradient matrix elements.

34. (Previously Presented) The method of claim 33, wherein the highest local gradient matrix elements include at least three highest local gradient matrix elements.

35. (Previously Presented) The method of claim 33, wherein the weighted average of pixel values having the highest local gradient matrix elements include giving greater weight to pixel values proximate to the defective pixel.

36. (Previously Presented) The method of claim 29, further comprising:

identifying the defective pixel in the image produced by the detector before determining a local gradient;

temporarily replacing the defective pixel with a linear interpolation of a surrounding neighboring pixels of the defective pixel before determining a local gradient; and

replacing the defective pixel with the correction value.

37. (Previously Presented) A method for correcting a defective pixel in an image produced by an x-ray detector having a defective input at the pixel, the image including an array of pixels and the pixels having corresponding pixel values, the method comprising:

receiving the image from the x-ray detector;

analyzing global characteristics of pixels in proximity to the defective pixel; and

correcting the defective pixel based on the global characteristics.

38. (Previously Presented) The method of claim 37, wherein the pixels in proximity to the defective pixel whose global characteristics are analyzed include at least a few pixels that are within a three pixel radius of the defective pixel, and that do not border the defective pixel.

39. (Previously Presented) The method of claim 38, wherein analyzing global characteristics of pixels in proximity to the defective pixel comprises determining gradient pixel values of pixels in proximity to the defective pixel.

40. (Previously Presented) The method of claim 39, wherein correcting the defective pixel based on the global characteristics comprises determining a correction value for the defective pixel using the gradient pixel values of pixels in proximity to the defective pixel.

41. (Previously Presented) The method of claim 38, wherein the pixels surrounding the defective pixel whose global characteristics are analyzed include at least those pixels within a 5 by 5 array where the defective pixel is at a center of the array.

42. (Previously Presented) The method of claim 41, wherein analyzing global characteristics of pixels in proximity to the defective pixel comprises analyzing characteristics of an array made of about seven columns and about seven rows of pixels, where the defective pixel is at a center of the array.

43. (Previously Presented) The method of claim 37, wherein the pixels in proximity to the defective pixel whose global characteristics are analyzed include at least those pixels that are not defective and that are within a three pixel radius of the defective pixel.

44. (New) A method for correcting a defective pixel in an image produced by a digital detector having a defective input at the defective pixel, the image including an array of pixels and the pixels having corresponding pixel values, the method comprising:

analyzing a characteristic of each of a plurality of pixels;

selecting a first pixel of the plurality of pixels having a first pixel value based on the analyzed characteristic of the first pixel;

selecting a second pixel of the plurality of pixels having a second pixel value based on the analyzed characteristic of the second pixel;

selecting a third pixel of the plurality of pixels having a third pixel value based on the analyzed characteristic of the third pixel; and

providing a pixel value for the defective pixel using the first, second, and third pixel values.

45. (New) The method of claim 44, wherein the characteristic analyzed comprises a gradient of each of the plurality of pixels.

46. (New) The method of claim 45, wherein determining the gradient for each pixel includes temporarily replacing the pixel value of the defective pixel with a calculated pixel value.

47. (New) The method of claim 45, wherein the provided pixel value comprises a linear average of pixel values from pixels that are not defective.

48. (New) The method of claim 45, wherein the gradient for each pixel is determined by at least one of a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

49. (New) The method of claim 45, wherein the gradient for each pixel is determined by $G_i = \sqrt{(A_i * H)^2 + (A_i * (-H))^2}$.

50. (New) The method of claim 45, wherein the first, second, and third pixels are selected based on having a highest gradient value of the plurality of pixels that are analyzed.

51. (New) The method of claim 44, wherein providing a pixel value for the defective pixel using the first, second, and third pixel values comprises averaging the pixel values used to provide a pixel value for the value of the defective pixel.

52. (New) The method of claim 51, wherein averaging the pixels values comprises using a linear average of the pixel values.

53. (New) The method of claim 51, wherein averaging the pixels values comprises using a weighted average of the pixel values.

54. (New) The method of claim 53, wherein a weight assigned to each pixel value used to provide the pixel value of the defective pixel is based on a characteristic used to select the pixel to be used to provide a value for the defective pixel.

55. (New) The method of claim 53, wherein a weight assigned to each pixel value used to provide the pixel value of the defective pixel is based on a proximity of the pixel to be used to provide a value for the defective pixel to the defective pixel.

56. (New) The method of claim 44, wherein the first, second, and third pixels are further selected based on whether they border the defective pixel in the array of pixels.

57. (New) The method of claim 44, wherein the analyzed characteristic of the plurality of pixels are calculated based on pixel values of the pixels.

58. (New) The method of claim 44, wherein the characteristic analyzed comprises a characteristic selected from a group consisting of edge strength, gradient strength, and image feature strength.

59. (New) A method for correcting a defective pixel in an image produced by an x-ray detector having a defective input at the pixel, the image including an array of pixels and the pixels having corresponding pixel values, the method comprising:

receiving an image from a digital detector;

analyzing a characteristic of each of a plurality of pixels, the characteristic for each of the plurality of pixels based on pixel values;

selecting a first pixel of the plurality of pixels having a first pixel value based on the analyzed characteristic of the first pixel;

selecting a second pixel of the plurality of pixels having a second pixel value based on the analyzed characteristic of the second pixel; and

providing a pixel value for the defective pixel using the first and second pixel values.

60. (New) The method of claim 59, wherein the characteristic analyzed comprises a gradient of each of the plurality of pixels.

61. (New) The method of claim 60, wherein determining the gradient for each pixel includes temporarily replacing the pixel value of the defective pixel with a calculated pixel value.

62. (New) The method of claim 61, wherein the calculated pixel value is a linear average of pixel values from pixels that are not defective.

63. (New) The method of claim 60, wherein the gradients for the first and second pixels are determined by at least one of a Laplacian of a Gaussian filter kernel, a Roberts gradient kernel, a Prewitt gradient kernel, and a Sobel gradient kernel.

64. (New) The method of claim 60, wherein the gradient for the first and second pixels are determined by applying $G_i = \sqrt{(A_i * H)^2 + (A_i * (-H))^2}$.

65. (New) The method of claim 60, wherein the first and second pixels are selected based on having a highest gradient value of the plurality of pixels that are analyzed..

66. (New) The method of claim 59, wherein providing a value for the defective pixel using values of a plurality of pixels comprises averaging pixel values used to provide a pixel value for the defective value.

67. (New) The method of claim 66, wherein averaging the pixels values comprises using a linear average of the pixel values.

68. (New) The method of claim 66, wherein averaging the pixels values comprises using a weighted average of the pixel values.

69. (New) The method of claim 68, wherein a weight assigned to each pixel value used to provide the pixel value of the defective pixel is based on the characteristic used to select the pixel to be used to provide a value for the defective pixel.

70. (New) The method of claim 68, wherein a weight assigned to each pixel value used to provide the pixel value of the defective pixel is based on a proximity of the pixel to be used to provide a value for the defective pixel to the defective pixel.

71. (New) The method of claim 59, wherein the first and second pixels are selected such that they border the defective pixel in the array of pixels.

72. (New) The method of claim 71, wherein the characteristic analyzed comprises a characteristic selected from a group consisting of edge strength, gradient strength, and image feature strength.

73. (New) The method of claim 59, further comprising displaying the image to a user, wherein the displayed image comprises the first pixel value, the second pixel value, and the pixel value provided for the defective pixel.

74. (New) The method of claim 59, further comprising repeating a process of analyzing a characteristic of each of a plurality of pixels, the characteristic for each of the plurality of pixels based on pixel values; selecting a first pixel of the plurality of pixels having a first pixel value based on the analyzed characteristic of the first pixel; selecting a second pixel of the plurality of pixels having a second pixel value based on the analyzed characteristic of the second pixel; and providing a pixel value for the defective pixel using the first and second pixel values for each of the defective pixels of the digital detector.

75. (New) The method of claim 59, further comprising determining which pixels of the digital detector are defective before an image to be corrected is received from the digital detector.